

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000084**Date Inspected:** 06-Mar-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 800**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Liu Liu**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** N/A**Summary of Items Observed:**

The CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the welding qualification testing pertinent for the welding qualification record (PQR) HP200710 scheduled for this project. ZPMC, welder operator Jiang Xian Hu was observed by the QA Inspector performing welding operations following the preliminary welding procedure specification PWPS-B-T-2231-T-1 for the PQR identified as HP200710. Base metal was designated as A-709-50-2/Z25 (Heat # 06102938N) and appeared to meet the non-fracture critical impact test requirement. The root opening of the joint was approximately 6mm. ZPMC followed the production procedure WPS(AWS 5.13) for nonstandard joints using the automatic flux cored arc welding gas (FCAW-G) process in the flat (1G) position with the 1.4 mm diameter TWE-711 electrode. The QA Inspector verified dimensions for the test coupon, amperages, voltages, travel speeds, preheat and heat interpass temperatures. The QA inspectors recorded welding parameters for a total of 6 passes. The QA inspectors observed that the welding parameters taken by Quality Control (QC) inspector Chin Libin and ZPMC QA inspectors Xu Jun and Hu Gang appeared to be accurate and in accordance with the contract documents. ZPMC QA Inspector Liu Liu witnessed the testing and performed visual weld inspections. The welding procedure qualification was still in process at the end of shift.

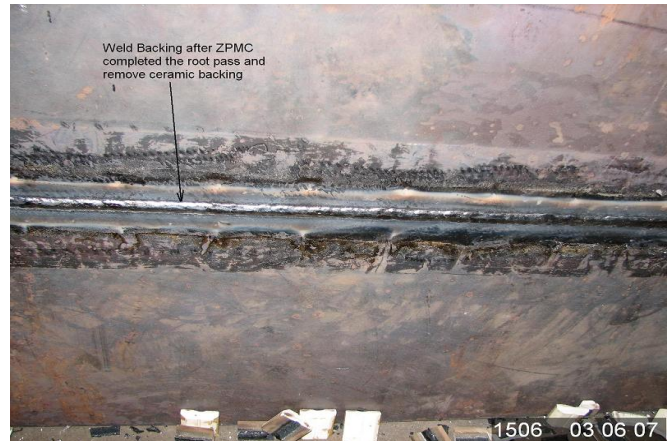
The digital photos below show the ceramic weld backing material used and the root pass observed after the ceramic backing was removed.

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# WELDING INSPECTION REPORT

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## Summary of Conversations:

The QA inspector had a conversation with the Mr. Liu and Mr. Hu before the welding of the PQR HP200710 started. The QA brought to the attention that the welding parameters listed on the preliminary welding procedure PWPS-B-T-2231-T-1 were at the maximum values (calculated heat input 2.5 J/mm) for the PQR HP200706, which was performed in accordance with AWS D1.5, Section 5.12.1 (Maximum Heat Input). The QA inspector conveyed that ZPMC should not elect to exceed the maximum heat input of 2.5 J/mm listed on the PQR HP200706. Mr. Liu and Mr. Hu disagreed. Mr. Liu and Hu relayed to the QA inspector that the PQR HP200710 for the non-standard joint qualified itself without using the welding electrical parameters established in another PQR. The QA inspector relayed to the Mr. Liu and Mr. Hu that the QA inspector had a previous conversation with Caltrans Task Leader Dave McClary and in order to ZPMC comply with the contract documents two combined PQRs were required (A PQR welded in accordance with the figure 5.1 standard joint which establishes the mechanical properties combined with a nonstandard joint PQR welded according with the figure 5.3 to verify the joint soundness when performed within the parameters establish from the figure 5.1 test plate). Later, ZPMC agreed and lowered the heat input of the preliminary WPS-B-T-2231-T-1 in conforming PQR HP200706.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Acuna, Alfredo	Quality Assurance Inspector
<b>Reviewed By:</b>	McClary, David	QA Reviewer

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